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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/972,163	10/04/2001	Donald F. Albert	AAC-1 CIP	5897

1473 7590 02/03/2005

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EXAMINER

VO. HAI,

ART UNIT PAPER NUMBER

1771

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/972,163	ALBERT ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Hai Vo	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 November 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16, 19-41, 43-93, 95-116 and 118-139 is/are pending in the application.
- 4a) Of the above claim(s) 39, 52, 54-83, 86-89, 113, 127 and 129-139 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16, 19-38, 40, 41, 43-51, 53, 84, 85, 90-93, 95-112, 114-116, 118-126 and 128 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

1. All of the art rejections are withdrawn in view of the present arguments.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 37, 40, 41, 43-45, 49, 115, 116, 118-120, and 124 are rejected under 35 U.S.C. 102(b) as being anticipated by Yokogawa et al (US 5,830,387).

Yokogawa teaches a hydrophobic aerogel comprising acetic acid (column 3, lines 30-35). The hydrophobic aerogel having porous structure comprises benzene and alcohol (column 3, lines 34 and 60-65, column 4, lines 20-27). It is the examiner's position that Yokogawa anticipates the claimed subject matter.

4. Claims 1-13, 21-24, 84, 85, 90, and 95-100 are rejected under 35 U.S.C. 102(e) as being anticipated by Hrubesh et al (US 6,005,012). Hrubesh teaches an organic, monolithic aerogel substantially free of crack (example 4, column 1, line 29). The aerogel is greater than about 100 mm in minimum dimension (column 7, lines 14-15). Likewise, the aerogel having its smallest dimension greater than 100 mm or 3.97 inch within the claimed range. Further, Hrubesh teaches the aerogel having a width greater than 5 mm, length greater than 10 mm and a

thickness greater than 2 mm. Likewise, the aerogel has its smallest dimension greater than 2 mm, encompassing the claimed range. The monolithic aerogel is prepared using a non-critical drying process (example 4) and has a density of from 20 to 300 kg/m<sup>3</sup> (column 4, line 2), a surface area at least of 200 m<sup>2</sup>/g (column 3, line 58) and a porosity from 85% to 90% (column 4, lines 2-4). Since the claim does not exclude an organic monolithic aerogel that has a surface area of 200 m<sup>2</sup>/g, the surface area value disclosed by Hrubesh is within Applicants' claimed range. The organic aerogel is dried in less than 24 hours (example 4). The organic aerogel has the average pore size less than 5000 angstroms or 0.05 micron (column 3, line 54). Likewise, it is clearly apparent that the organic aerogel has a pore area less than 0.2 sq. micron. Hrubesh teaches a small pore area formed from a mixture of phenolic-novolak resin dissolved in furfural and the mixture further dissolved in a propanol (column 3, lines 38-40). Hrubesh teaches that the organic aerogel can be further carbonized (column 3, lines 42-43). Hrubesh does not specifically disclose that the organic, monolithic aerogel does not shrink substantially. However, it appears that Hrubesh's organic aerogel meets all the physical properties such as pore size, density, porosity, pore area, surface area and dimensions within the claimed ranges. Further, the shrinkage of the organic aerogel is also dependent on chemistry of the materials from which it is formed. Hrubesh's aerogel is made of the same materials as Applicants' aerogel (phenolic-novolak resin dissolved in furfural). Therefore, it is not seen that Hrubesh's organic aerogel have been performed differently than Applicants'

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aerogel in terms of shrinkage resistance. This is in line with *In re Spada*, 15 USPQ 2d 1655 (1990). Products of identical chemical composition can not have mutually exclusive properties. It is the examiner's position that Hrubesh anticipates the claimed subject matter.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 14-16, 19-20, 91-93 are rejected under 35 U.S.C. 102 (e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hrubesh et al (US 6,005,012).

Hrubesh does not specifically disclose that the organic, monolithic aerogel is formed in situ. It is the examiner's position that the organic aerogel of Hrubesh is identical to or only slightly different than the claimed article prepared by the method of the claim, because both articles are formed from the same materials, having all the physical properties required by the claims. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious from a product of the prior art, the claim is

unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289,291 (Fed. Cir. 1983). The Hrubesh reference anticipates the claimed subject matter. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Hrubesh. It is the examiner's position that Hrubesh anticipates or strongly suggests the claimed subject matter.

7. Claims 25-36 and 101-112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hrubesh et al (US 6,005,012) as applied to claim 2 above, further in view of Pekala (US 5,744,510). Hrubesh does not specifically disclose the thermal conductivity of the organic monolithic aerogel. Therefore, it is necessary and thus obvious for the skilled artisan to look to the prior art for the suitable thermal conductivity of the organic aerogel. Pekala teaches the organic aerogel having a thermal conductivity from 0.0045 to 0.0065 W/m-k after evacuation (column 5, line 34, figure 3) meeting the specific range required by the claims. In an absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the organic aerogel having a thermal conductivity instantly claimed, motivated by

Pekala and expectation of successfully practicing the invention of Hrubesh. Such a low thermal conductivity is also taught by the prior art to make the aerogel suitable for use as an electrode, which is important to the invention of Hrubesh, thus further suggesting the modification.

8. Claims 38 and 114 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hrubesh et al (US 6,005,012) as applied to claims 1 and 90 above, in view of Yokogawa et al (US 5,830,387). Hrubesh does not specifically disclose the aerogel comprising acetic acid. Yokogawa teaches the aerogel comprising acetic acid to improve hydrophobic properties (column 3, lines 30-45). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ acetic acid in the aerogel motivated by the desire to improve hydrophobic properties of the aerogel.
9. Claims 53 and 128 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hrubesh et al (US 6,005,012) as applied to claims 1 and 90 above, further in view of Mayer et al (US 5,908,896). Hrubesh does not specifically disclose the organic aerogel comprising a surfactant. Mayer, however, teaches an organic aerogel comprising a surfactant to stabilize the suspension. This is important to the expectation of successfully practicing the invention of Hrubesh, thus suggesting the modification. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a surfactant in the aerogel motivated by the desire to stabilize the suspension.

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10. Claims 40, 41, 43-51, 115, 116, and 118-126 are rejected under 35 U.S.C.

103(a) as being unpatentable over Pekala (US 5,744,510) in view of in view of Yokogawa et al (US 5,830,387). Pekala discloses a small pore area formed from a mixture of phenolic-novolak resin dissolved in furfural and the mixture further dissolved in a propanol. The small pore area is prepared by a sol-gel polymerization process (abstract). The low density microcellular material having a pore size of 0.01 microns is in form of a complex prepared during a sol-gel polymerization process (abstract). Pekala does not specifically disclose the low density microcellular material comprising an acetic acid. Yokogawa, however, disclose the aerogel being treated with acetic acid to promote the hydrophobic property. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ acetic acid in the aerogel motivated by the desire to promote the hydrophobic property.

### ***Double Patenting***

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).



12. Claims 40, 41, 43-51, 115, 116, and 118-126 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 6,090,861 in view of Yokogawa et al (US 5,830,387). Claims 1-8 of U.S. Patent No. 6,090,861 disclose a porous aerogel formed from a mixture of phenolic-novolak resin dissolved in furfural and the mixture further dissolved in a propanol. The small pore area is prepared by a sol-gel polymerization process. The U.S. Patent No. 6,090,861 does not specifically disclose the porous aerogel material comprising an acetic acid. Yokogawa, however, disclose the aerogel being treated with acetic acid to promote the hydrophobic property. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ acetic acid in the aerogel motivated by the desire to promote the hydrophobic property.

### ***Response to Arguments***

13. The art rejections over Kaschmitter et al (US 5,789,338) are withdrawn in view of the present arguments. As pointed out by Applicants, Kaschmitter uses acetic acid as a catalyst to promote the corsslinking in the aerogel, therefore acetic acid is not consumed in the reactions process. Accordingly, acetic acid is not present in the structure of the aerogel. However, upon further consideration, new grounds of rejections are made in view of Yokogawa et al (US 5,830,387).
14. The art rejections over Hrubesh et al (US 6,005,012) in view of Kaschmitter et al (US 5,789,338) are withdrawn for the same reasons set forth in the paragraph

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no. 1. However, upon further consideration, new grounds of rejections are made in view of Hrubesh et al (US 6,005,012) and Yokogawa et al (US 5,830,387).

15. The 103 art rejections over Hrubesh et al (US 6,005,012) in view of Coronado et al (US 6,087,407) are withdrawn and now changed to 102(e) art rejections over Hrubesh et al (US 6,005,012). Applicants argue that neither Hrubesh nor Coronado teaches the aerogel having the smallest dimension greater than 3 inch. The examiner disagrees. Hrubesh teaches an organic, monolithic aerogel substantially free of crack (example 4, column 1, line 29). The aerogel is greater than about 100 mm in minimum dimension (column 7, lines 14-15). Likewise, the aerogel having its smallest dimension greater than 100 mm or 3.97 inch within the claimed range. Further, Hrubesh teaches the aerogel having a width greater than 5 mm, length greater than 10 mm and a thickness greater than 2 mm. Likewise, the aerogel has its smallest dimension greater than 2 mm, encompassing the claimed range. The range is therefore anticipated by the Hrubesh reference.

### ***Conclusion***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on M,T,Th, F, 7:00-4:30 and on alternating Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax

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phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HV

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